FAA AVIATION NEWS

JUNE 1970

COVER

Before committing your ailing bird to an unfamiliar stretch of sand, look for a military airstrip nearby. If your trouble is real, the troops will be friendly. See page 4.

FAA AVIATION NEWS

DEPARTMENT OF TRANSPORTATION / **FEDERAL AVIATION ADMINISTRATION** VOL. 9, NO. 2

CONTENTS / June 1970

3 Campbell Is Coming

4 Military Airfields: Are They Off Limits?

6 Fire In The Wheels

7 Blind Spots VI: Under The Wing

9 Outward Bound

10 Heroes of the Hangar

12 Famous Flyers: Wings To The Orient

13 Pilot Briefs

14 News Log: Flight Instructor Refresher Courses . . . Air Line Captain Decorated For Heroism . . . Sonic Boom Restrictions Sought . . . Technical Reports on Dual Antenna Transponders . . .

15 Flight Forum

Fast company Page 4

Engine diagnosticians Page 10

John A. Volpe, *Secretary of Transportation*

John H. Shaffer, *Administrator, FAA*

Dennis Feldman, *Acting Asst. Administrator for Public Affairs*

Lewis D. Gelfan, *Chief, Publications Division*

FAA AVIATION NEWS is published by the Office of Public Affairs, PA-20, Federal Aviation Administration, Washington, D. C. 20590, in the interest of aviation safety and to acquaint readers with the policies and programs of the agency. The use of funds for printing FAA AVIATION NEWS was approved by the Director of the Bureau of the Budget, July 14, 1967. Send change of address to the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, with a mailing label from any recent issue. Single copies of FAA AVIATION NEWS may be purchased from the Superintendent of Documents for 20 cents each. All printed materials contained herein are advisory or informational in nature and should not be construed as having any regulatory effect. The FAA does not officially endorse any goods, services, materials, or products of manufacturers.

James W. "Pete" Campbell (right), Chief of the Flight Instructor Unit, Flight Standards Training Branch at the FAA Academy in Oklahoma is the originator of "Campbell's Caravan," three teams of three men each who travel around the country speaking at flight instructor refresher courses.

Campbell is Coming

Eight years ago, the Montana State Aviation Commission became convinced that some kind of linkage was needed between the flight instructor, a private entrepreneur, and the Federal agency which certificates pilots. They were convinced that flying could be made a good deal safer if instruction techniques could be standardized so that the product of pilot training in Cut Bank, Montana, would have the same basic understanding of correct flight procedures as the product of flight instruction in West Yellowstone, or Missoula, or Great Falls —despite the hundreds of miles that separated these Montana towns.

The Commission sought assistance from the FAA Academy, which responded by sending out a team of professional "instructors of flight instructors" to conduct a clinic in Great Falls.

The first permanent team consisted of Pete Campbell, team captain, who instructed instruments and performance; Carl Edminson, who instructed flight maneuvers; and James Shelley, who instructed in fundamentals of instruction. Pete Campbell, a veteran of 56 aerial combat missions in World War II and a former commercial flight instructor, had a wide reputation as a convincing speaker who was willing and eager to talk about aviation safety problems 24 hours a day.

The pioneer meeting of flight instructors in Great Falls in 1962 was the beginning of a nationwide instructor refresher course program which has drawn over 15,000 attendees to over 280 clinics. From Honolulu to San Juan, Puerto Rico, these courses have been sponsored by AOPA, state aviation boards, colleges and universities, and other non-profit organizations concerned with aviation safety.

Campbell has since become chief of the flight instructor refresher unit of the FAA Academy. His unit consists of nine senior flight instructors who work together in units of three-man squads, traveling extensively to participate in refresher clinics wherever they are held. At a recent refresher course in Baltimore, Md., Campbell was presented a special award by the AOPA Air Safety Foundation for "his tireless efforts in imparting knowledge to flight instructors throughout the United States."

The Baltimore course, jointly sponsored by AOPA and the Maryland State Aviation Commission, is typical of the flight instructor refresher programs which take place approximately twice a month with the cooperation of FAA and the National Transportation Safety Board. The three-day program took place at Baltimore's Friendship Airport, and drew 79 attendees from as far north as New Hampshire and as far south as South Carolina. Many flew to the site in their own or rented aircraft.

To be eligible for the course one had to be:

(1) a candidate for renewal of his flight instructor certificate, or

(2) a commercial pilot working toward his flight instructor rating, or

(3) an officer in a college, university or service flying club, or

(4) a teacher in a city or county school system instructing in aeronautical subjects.

The course fee, $25, covered all texts and materials related to the course, as well as instruction. There were 26 hours of classroom lectures, discussions and seminars. At the completion of the course, FAA inspectors from the Friendship GADO were on hand to give check rides for those requiring them, to revalidate instructor certificates, and to award gold seals for eligible course graduates.

All valid flight instructor certificates now bear expiration dates. FAA inspectors may renew valid certificates of instructors who show currency and competency, or who are recent graduates of a flight instructor refresher course. The holder of an expired certificate must pass a practical test before he can be reinstated. Gold seal certificates may be issued to flight instructors who also hold commercial pilot and ground instructor certificates with advanced or instrument ground instructor rating who attended a refresher course within the past 24 months and carried out a specified number of flight tests and/or training courses for pilots.

Subjects covered in the course included Instruments and Performance, Flight Maneuvers, Fundamentals of Teaching, Aviation Medicine, Aerodynamics, FAA Regulations, and Accident Prevention. Particular attention was paid to multi-engine operation. The faculty consisted of four FAA instructors and a representative of the National Transportation Safety Board.

The teaching staff emphasized the importance of instructors inculcating in their students *instinctively correct* behavior for all flight situations—as opposed to *untutored instinctive reactions* which could lead to loss of control of the aircraft in an emergency.

In a typical session, Chuck Steuben of the FAA Academy urged the instructors to be less concerned with detailed limitations, such as maximum loss of altitude in a stall, than with the student's overall response to stall or near stall situations.

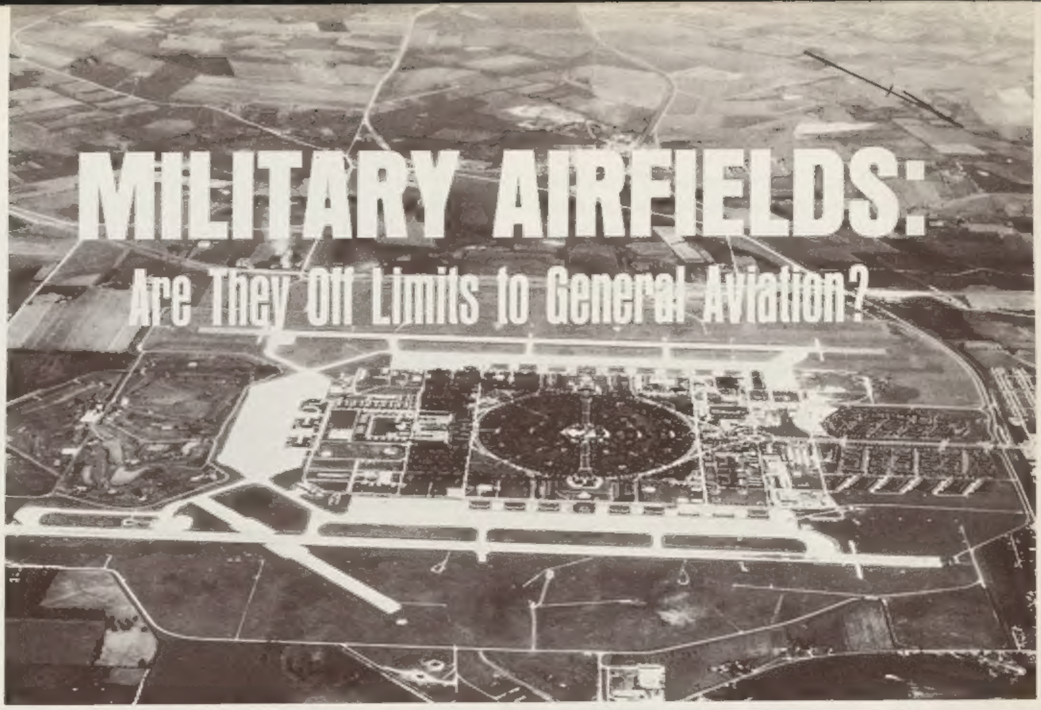
The minimum controllable airspeed concept was similarly analyzed. It was pointed out that many student pilots and even some instructors think of "slow flight" as a straight and level maneuver, whereas in fact a minimum controllable airspeed situation may be practiced with benefit during climb, descent or in turn. The principal criterion is not the attitude of the aircraft or the indicated airspeed (which always varies somewhat, even in identical models), but the stabilization of the condition of flight with the appropriate power selection.

Instructors who attend these refresher courses almost invariably return home with a more personalized understanding of FAA-approved flight procedures and standards of pilot performance, as well as new insight into means of stimulating students toward greater flying proficiency. They realize that the subsequent development and safety of their students, long after they have been certificated as pilots and are flying on their own, will be affected strongly by the learning and practice habits formed under their tutelage. The key characteristic of the successful flight instructor, according to Pete Campbell, is the desire to help others fly safely and happily, and the best way to accomplish that end is to refresh one's instruction technique periodically. ■

A complete, state by state listing of flight instructor refresher courses for the remainder of calendar 1970 is given on page 14.

MILITARY AIRFIELDS:

Are They Off Limits to General Aviation?



The engine, which had sputtered several times earlier, was now definitely running rough, and the pilot of the single engine aircraft was glad that he had turned back toward land at the first sound of trouble. He was an hour out of Charleston, S.C.—no chance of getting back from the way the manifold pressure was dropping off, but right now he was willing to settle for a good smooth stretch of beach.

As the shore approached, the beach did not look quite so inviting as he had imagined; the sand was piled up in high dunes and dotted with coarse vegetation. He was still losing altitude despite full throttle and adjusted mixture, and he checked the chart again to see whether he had overlooked an emergency field. Nothing—except of course Myrtle Beach Air Force Base, less than a mile off, but closed to civilians.

Or was it? Maybe it was worth a try. There was no radio frequency shown at the base, so he tuned his transmitter to 121.5 MHz.

Myrtle Beach Air Force Base, this is Bonanza seven-three-five delta, about a mile south. My engine's cutting out. Any chance of coming in?

Troops Are Friendly

He unkeyed the mike and waited for angry words. To his surprise he was immediately and efficiently cleared for a straight-in approach to the north/south runway, which extended toward him all the way down to the beach. He was embarrassed to see the array of men and emergency equipment standing by as he landed, and when the ground controller asked whether he required assistance in moving the aircraft off the runway he almost wished he could reply in the affirmative. He assumed he had violated all kinds of regulations, military and civil.

As a matter of fact, he had not. Military airports of all kinds are accessible to civilian aircraft *under emergency conditions*. Military control towers all monitor the 121.5 MHz civilian MAYDAY frequency and will clear a distressed aircraft in to land as soon as field conditions permit. In the event of radio failure, the civilian pilot should signal his intentions by flying past the tower and rocking his wings. He must be extremely alert for military air traffic, and land only after receiving a green light from the tower. Of course, if he has no capacity to remain airborne, he has no alternative but to set his stricken bird down on the nearest runway and take his chances on having traffic cleared away for him by the tower.

Upon landing, the pilot will be asked to show cause for having declared an emergency. If the emergency is clearly apparent, he will be given assistance in removing his aircraft to a repair facility. The civil user making an emergency landing can expect to fill out various military forms regarding

Above—expansive runways of Randolph AFB, USAF Training Command headquarters, present an invitation to land. **Below**—aircraft refueling on tactical military base runways may be hazardous to the unwary. **Right**—military runways are often cluttered with supplies staged for airlift.

the incident. In addition, he will be billed for payment of all direct costs arising in connection with the emergency. These direct costs include labor, material, rent of equipment, vehicles or tools, etc., for spreading foam on the runway for a wheels-up landing, fire and crash control and rescue, movement and storage of aircraft or wreckage; or damage to runway lights, navigation aids, etc.

If, on the other hand, no valid reason can be given for landing, the pilot will face no end of trouble. He may be in violation of FAR 91 (General Operating Rules); he may be penalized by FCC for misuse of his radio; and he will almost certainly be handed a costly bill by the base commander for landing fees, as well as all expenses to the Government resulting from the landing.

In addition, the military services reserve the right to use any method or means to clear the aircraft or wreckage from the runway. Consistent with actual national defense requirements, care will be taken to avoid unnecessary damage in removing the aircraft or wreckage. If, however, a scramble is called, any impeding aircraft would be removed immediately.

An *unauthorized* landing at an Air Force base can be a costly adventure. For aircraft weighing up to 12,500 pounds, the Air Force can charge a landing fee of up to $100; for aircraft weighing more than 12,500 pounds, but less than 40,000 pounds, the fee could come to $250; and for planes weighing 40,000 pounds or more, $500.

Trouble Could Double

And that could be only the beginning. Even in the case of a bona fide emergency, the pilot or owner must file a complete narrative report of the emergency with the installation commander, and he must complete certain Air Force forms, including a "hold harmless" agreement and proof of insurance if the aircraft is to be flown out from the air base. If the Air Force base commander believes the landing was a deliberate violation of Air Force Regulations (AFR 55-20, "Use of Air Force Installations by Other than U.S. Department of Defense Aircraft") departure authorization can be granted only by Air Force Head-

F-101 Voodoos taxi past Piper Tripacer tied down at an Air Force Base after an emergency landing. **Left**—F-4 Phantom undergoing special testing illustrates hazardous flight conditions found at some military fields. **Below**—sudden scramble of jet fighters cannot be forecast and could present a transient general aviation pilot with a grave surprise.

quarters. So the bird may be nesting among the military eaglets for quite a while. In any case, the circumstances of the landing will be reported to the nearest FAA General Aviation District Office for possible action.

Clearly, an unauthorized landing at a military air base is an urge to be resisted, despite those inviting lengthy stretches of smooth concrete.

U.S. Air Force, Navy and Coast Guard fields are open to civilian fliers on a non-emergency basis only with prior permission, which must be in writing. For Air Force installations, prior permission should be requested at least 30 days in advance of the intended landing. Apply to Headquarters USAF.

For U.S. Navy installations, prior permission should be requested from the Chief of Naval Operations via the field commander. For Coast Guard airfields, authorization must come from the Commandant, U.S. Coast Guard, via the field commander.

As a general principle, use of these military air fields is allowed only when there is no suitable civil airport and when the purpose of the flight can be shown to be to the advantage of the Federal Government.

Permission to use an Army airfield must usually be granted by Headquarters, Department of the Army. This is similar to the requirements of the other military services. The "installation commander" has limited authority to permit landing by aircraft not operated for profit and not requiring servicing. Permission for general aviation use of an Army facility will be considered only if civil or commercial facilities are not reasonably available.

Army airfields, with few exceptions, are located on major installations; therefore, the person to permit landings is not the "airfield commander" as his position is subordinate to the installation commander. Delay may be expected if permission to use the field has not been obtained in advance.

All military services operate under the same provisions of Public Law concerning this subject. Though procedures may vary between services, the principles concerning use of military fields are the same.

Each of the services has closely regulated agreements with the relatively few commercial operators who do use military fields. The first condition is that this use be of direct benefit to the service or to the Government. Air carriers, non-scheduled air carriers, and air taxis, for example, are permitted to use military fields when the carrier is operating under Government contract. The conditions, limits, and liabilities are carefully spelled out, and each user must carry hefty insurance of a type and insurer acceptable to the service concerned. In addition, all must execute a "hold harmless" agreement absolving the Government of all liability and loss. Clearly, these are imposing restrictions.

Landing on a military field without proper clearance—including an authentic emergency landing—is hazardous simply because the field *is* a military field. With the exception of Army fields, where based aircraft may resemble typical general aviation planes in power and type, military fields are home base for some of the most powerful aircraft in the world. Their takeoff and landing is accompanied by significant wake turbulence, and their closing speed is often startling to pilots accustomed to the more leisurely pace of a general aviation airport.

Military Mission is Paramount

The military mission is the overriding concern of Air Force, Navy, Marine, and Army air base commanders. At Air Defense and Strategic Air Command bases, aircraft are scrambled at an instant's notice even in practice runs. Even without this factor, their sudden appearance hurtling down the runway at full takeoff speed is an awe-inspiring sight calculated to upset the nerves of the typical general aviation pilot.

Military *training* fields present their own hazards—on good flying days the skies surrounding these bases are bound to be swarming with pilots with varying degrees of proficiency, flying aircraft they may be just getting the feel of. At Ft. Rucker, Ala., for example, there are some 40 assault helicopter landing areas, in addition to the regular air field. Their simultaneous use produces a mighty thick cluster of aircraft, flown by students, in a restricted amount of airspace. An intruder enters this airspace at his own peril—and risks the lives of the authorized users as well.

The welcome mat is always out at military airfields for pilots in distress. On other occasions, unless you have specific, written authority to land, the Armed Services would much prefer you patronize a civil airport —in the name of safety. ■

Where to Obtain Advance Authorization To Land at U. S. Military Airports

Type of Airport	Approving Authority
Air Force	Hq. USAF (AFOAPDA), Wash., D. C. 20330.
Navy	Chief, Naval Operations (OP 532) via field commander.
Coast Guard	Commandant, via field commander.
Army	Headquarters, Department of the Army, Installation Commander.

FIRE IN THE WHEELS

Left—extensive damage to the main landing gear assembly and wheel well followed this tire explosion and fire. Above—this tire exploded approximately 12 minutes after the airplane was parked. Tire explosions are violent enough to hurl wheel rim parts as far as 500 feet, creating a hazard to ground maintenance personnel and parked aircraft.

The big jet transport swung gingerly off taxiway and rolled slowly toward the airlines' maintenance area where it came to a stop. The crew showed signs of strain as they stepped down from the cockpit. What had started as a routine familiarization flight had ended as an aborted takeoff following a loss of engine power. Even now the faint crackling sounds of expanding hot metal could be heard from the engine tailpipes.

Twenty minutes later the usual airport noises were punctuated by a loud explosion, accompanied by the clatter of chunks of metal striking the side of a hangar and several ramp vehicles.

A wheel on the jet transport had exploded, and now thick black smoke was beginning to envelop the whole landing gear assembly, as the brake hydraulic fluid ignited. Before the fire was out, the landing gear assembly, hydraulic lines, electrical lines and junction boxes, and flap and wing areas were severely damaged.

The accident should have surprised no one familiar with the operation of heavy aircraft. Brake fires and wheel and tire explosions are a possible sequel to high speed braking situations, when care is not taken directly afterwards to prevent rapid heat transfer from the brakes to the wheels. They may also be anticipated following multiple braked stops during crew training or when a takeoff must be cut short by maximum effort stops.

Wheel and brake assemblies can also overheat to the danger point following a long taxi roll with dragging or seized brakes. When the crew of a heavy aircraft suspects brake malfunction, the plane is brought to a taxiway and halted, and the passengers disembarked because of the possibility of fire. The aircraft is then towed to a maintenance area where the brakes are allowed to cool naturally.

Friction heat in brakes is the product of the aircraft's weight and speed at the time the brakes are applied. Kinetic energy absorbed by the brakes is translated into heat. Most of the heat is dissipated to the surrounding air; some moves from the brakes to the wheel, and from the wheel to the tire. To prevent tire explosions caused by overheating, turbine aircraft wheels have thermal fuse plugs in the inner wheel half which releases air pressure in the tires when wheel temperature exceeds 300°F.

In addition, on some aircraft heat shields attached to the wheel inner half retard the transfer of heat from the brake and wheel rim to slow down overheating of the bead seat of the tire.

Many brake assemblies incorporate hydraulic shutoffs which cut off the flow of hydraulic fluid from lines severed by wheel or tire explosions. Since no hydraulic fluid is entirely resistent to fire, there is always the possibility of fire resulting from the fluid dripping on excessively heated brake surfaces. The hydraulic shutoffs limit this possibility.

Quarantine Hot Brakes

When it is suspected that an aircraft's brakes have been subjected to dangerously high temperatures the plane should be segregated from other aircraft, vehicles and personnel, and left with the parking brakes *off*. With parking brakes *set*, the heat dissipates less rapidly: the elevated temperature could cause sealer rings and gaskets to soften, allowing hydraulic fluid to spray hot brake assembly parts, inviting the possibility of fire.

The cooling of overheated brakes can be safely speeded up by fans or blowers. *Since the maximum heat within the wheel or tire develops 15 or more minutes after heavy or repeated braking, there is always the danger of a tire or wheel explosion.* It is standard practice in the military air services, for example, to enclose wheel assemblies with a heavy gauge wire cage as a protective device for personnel and materiel whenever excessively "hot brakes" are suspected.

Some wheel explosions have been violent enough to hurl parts of the wheel rim up to 500 feet. The flying shards of metal can cause fatal injuries and heavy property damage.

Overheated brakes should not be cooled rapidly by application of water, CO_2, or foam since these agents chill the wheel unevenly, causing internal stresses which change the strength values of the metal in the wheels.

All wheel assemblies, but especially those which are overheated or those actually on fire, should always be approached from fore or aft—never from the side. Firemen, fire trucks and rescue equipment should be positioned out of the lateral "line of fire" to minimize injury or damage to equipment from flying debris in the event of an explosion.

Once a brake fire starts it can quickly develop into a blaze that could threaten the entire aircraft. The tires could ignite, creating a fire with temperatures exceeding 500°F. Wheel fractures under these high temperatures could rupture fuel tanks or lines, adding to the combustibles in the immediate fire area.

The most effective agents for fighting wheel and brake fires are the various dry chemicals—potassium-chloride base, potassium-bicarbonate base, and mono-ammonium-phosphate base. (See "Fire in the Cabin," FAA AVIATION NEWS, May 1970.) The powder soaks up heat and blankets out air, stifling the fire without chilling the metal. After the fire has been extinguished and the area cooled down to prevailing ground temperature, the chemical residue can be hosed away by air or water without trouble.

In an emergency when no other agent is available, brake and wheel fires may be attacked by a fine spray of water, or by a high pressure fog, applied from behind a protective barrier. The greatest danger from wheel explosions is the hidden "time bomb" of heat accumulation which could go off without warning after the danger has apparently passed. ■

Frank J. Clifford

BLIND SPOTS VI

Sixth in a series of articles on problems of visibility from the cockpit.

In level flight the low wing hides a pyramid of airspace directly below and to the rear of the pilot. Aircraft so hidden present a midair collision hazard, especially in busy airport traffic areas.

Under the Wing

Midair collisions near airports usually occur in good weather and at relatively low speeds. Inability to see or be seen may be attributed to lack of awareness of the segment of airspace blocked out by the wing.

Low-wing aircraft have excellent visibility forward, overhead and to the rear. But the low-wing covers a specific area below the cabin, within which other aircraft may be hidden. Their presence may be unknown unless the pilot of the upper plane observes them entering the blocked out airspace and realizes that they have not emerged. Great care must be taken to be alert for such aircraft movements, especially during the landing phase when numerous pre-landing procedures tend to draw the pilot's attention inside the cockpit.

Pilots of low-wing aircraft should be particularly on the lookout for high-wing aircraft below them, since this situation provides a potentially mutual blind area of rather large dimensions, depending on the nearness of the aircraft and the wing configuration.

When the low wing is lowered in a turn, the pilot has an excellent opportunity to examine the airspace below him in the direction of the turn. However, he must remember that the silhouette of an aircraft below the horizon is difficult to spot against many types of landscape, especially when moving at low speed.

When the low-wing aircraft is turning within an airport pattern, such as a turn onto final approach, the area outside the turn will be effectively hidden from the pilot. He must take great care, therefore, to examine this area before he begins his turn, looking for other aircraft on straight-in final approach, or even turning on final from an opposing direction. Not all pilots, by any means, can be counted on to observe the standard or field indicated pattern turns. This is especially true at uncontrolled airports with considerable itinerant traffic. ■

SEEN AND UNSEEN

OUTWARD BOUND

Assuming that aircraft departing the airport ahead of you have left the traffic area can be a fatal mistake

The habit of circling directly over an airport of departure in order to set up a precise heading for a cross-country flight is a familiar one to most student pilots. No doubt it makes for a more accurate point of departure. But perhaps it is more important to remember that the number of aircraft using a given airspace increases in proportion to proximity to an airport. If a pilot wishes to climb to altitude before establishing the course for his first leg of transit, he will find the airspace several miles away from his departure runway much more comfortable to maneuver in than any portion in or over the airport traffic area. The fact that he has a legal right to fly over the airport area above 2,000 feet does not mean that there are no hazards in doing so, as the following example sadly illustrates.

On a clear day in August, Piper Colt N5929Z took off from Portsmouth/Chesapeake Airport with a 16-year-old student pilot at the controls. Portsmouth/Chesapeake is a small general aviation airport located along the swampy south shore of Chesapeake Bay, just west of Norfolk, Va. The student pilot, with 27 hours in his logbook, had planned a solo cross-country flight to Emporia, Va., some 50 miles to the west. Before setting out he had telephoned Patrick Henry Flight Service Station for his weather briefing: ceiling unlimited, visibility eight miles, wind 270° at four knots. He took off from Runway 27 at 2:26 p.m.

Impending midair collision, as faster aircraft (lower left) climbed through path of slower trainer. Danger was witnessed by third plane too late for warning.

Shortly afterwards a second Colt, also flown by a student pilot bound for the same destination, took off. The two young pilots intended to fly in company to Emporia and return.

The first aircraft made a 90° left turn from Runway 27, flew ahead a few seconds, and departed the traffic pattern with a 45° turn to the right. Outside of the traffic pattern the pilot turned to an easterly heading and climbed to 2,000 feet. When he was even with the downwind end of Runway 27 he made a 180° turn to the west and proceeded to fly over the airport parallel to and slightly south of Runway 27 at an altitude of 2,000 feet.

The second Colt climbed out directly behind, making somewhat tighter turns to catch up with N5929Z.

At approximately 2.31, a Cessna 210 (N6908R) took off from Runway 27. The high wing single-engine aircraft was bound for Lexington, Va., about 180 miles to the northwest in the Shenandoah Valley. The pilot, aged 30, had a commercial certificate and 407 hours in his logbook. He was traveling on business.

After becoming airborne, the Cessna pilot made a left turn to an easterly heading in a constant climb. Upon reaching the downwind end of Runway 27, he began a turn toward the west, over the airfield. As the first Colt crossed the airport boundary heading west, the second Colt pilot, who was 400 to 500 feet behind and turning to the west, observed the Cessna coming up from below and just to the left of the leading Colt, in a climbing left turn. Airspeed of the Colts was about 95 knots; the Cessna was climbing at about 125 knots.

As the horrified observer grabbed for his microphone to shout a warning, he saw the Cessna collide with the Colt; both aircraft appeared to disintegrate in the air and fall to earth.

Both pilots were killed.

The subsequent National Transportation Safety Board investigation gave as the probable cause the failure of the Cessna pilot to see and avoid other aircraft. Since his was the overtaking aircraft it was his responsibility to make certain that the airspace he was climbing into was clear of other aircraft.

A witness on the ground testified that he had been requested by the Cessna pilot to monitor his radio after the aircraft became airborne, since the pilot had experienced transmitter trouble in the air during a previous flight (the airport has no control tower). The witness had observed the Cessna take off, head east, and later make a sharp left turn as though to come back across the field. A few seconds later he saw and heard the collision.

Scanning for other aircraft is important at all times, but the hazards associated with lack of vigilance are obviously much greater in the vicinity of airports, where aircraft inevitably congregate. The prudent pilot usually avoids lingering unnecessarily over an airport traffic area. ■

Harold J. Moss, chief of Pan American's jet engine performance monitoring division, studies fan jet "plot" for the type of engine which powers the giant Boeing 747.

HEROES OF THE HANGAR

An impressive number of "accidents that didn't happen" are chalked up every year by alert ground crews. FAA and the aviation industry join in their annual salute to outstanding maintenance men.

The roar and the whine of jet engines are sweet sounds to the ears of Harold J. "Harry" Moss who keeps tabs on the health of some 648 jet engines for Pan American World Airways at JFK International Airport.

Harry Moss's development of Pan Am's engine performance monitoring program has earned him the title of top aircraft mechanic in the air carrier division of FAA's seventh annual National Aviation Mechanics Safety Awards Program. He is credited with having prevented inflight engine failures on world-girdling jets on a score of occasions.

A 39-year-old native New Yorker, Moss is described by his co-workers and supervisors as an engine diagnostician with an unerring instinct for singling out sick, lame or lazy engines. His skill is the product of long training and shrewd deduction based on experience piled up since he left high school in 1951 to become a Navy aircraft mechanic during the Korean War.

In the Navy, Moss specialized in hydraulic systems and landing gear maintenance, learning the aviation mechanic trade from the ground up. With the ink still damp on his discharge papers, Harry signed up with Pan American Airways in late 1954 as a mechanic. Early in 1956 he transferred to Flight Engineering as a flight engineer in DC-7Bs and DC-7Cs. When Pan Am converted to an all-jet fleet in 1959, and engineer jobs were sharply cut back, Harry reverted to mechanic status and became a technical crew production foreman. Today he keeps a watchful eye over hundreds of engines in service around the world.

Engine performance records, called "plots," stream into his office at the rate of 60 to 80 a day—most by wire from Pan Am's widespread ports-of-call, and some extracted from the engineer's flight report log when an aircraft lands at JFK. Only about five to ten percent of the "plots" show irregularities that bear further investigation.

The raw data for the plots come from flight engineers who record engine instrument readings at two-hour intervals on a special form.

They record outside air temperature (ram air entering the engine), air speed (Mach nr.), altitude, engine pressure ratio, exhaust gas temperature, low pressure compressor rpm, high pressure compressor rpm, fuel flow, and engine vibration.

Harry Moss and his crew receive the raw readings and adjust them to conform with the "standard day" performance curves established by the engine manufacturer. Translated to graphic form, these can be compared at a glance with what is considered optimum performance. A skilled diagnostician like Moss can quickly associate unusual movements on the plots with specific trouble signals. He can also radio an aircraft in flight and warn the engineer.

The results of preventive maintenance are rarely spectacular—an accident that didn't happen because an alert mechanic headed off trouble may never make the headlines; but they are the basis of safe air travel today.

Harry Moss has a number of these "accidents that never happened" to his credit. One such case happened with an aircraft which landed at JFK enroute to Europe. The engine plot showed that something not clearly discernible was amiss with the number one engine. The engine's previous history was one of normal reliability, but Moss felt that his graph projection hinted trouble ahead, perhaps far out over the Atlantic.

He ordered the aircraft held. When the engine had cooled, a mechanic crawled into the tail pipe at Moss' instructions and made his way to the high pressure turbine blade area where he carefully ran his fingers down each of the blades. As Moss had suspected, the blades were nicked, and needed replacement.

In another aircraft, a flight engineer noted on the plot sheet that the wing anti-ice temperature reading from the number one engine was slightly higher than the other engines. Despite the fact that all of Pan Am's JT3D engines had only recently been modified to reinforce the intermediate inner duct area, the likeliest source for the higher temperature, Harry had his suspicions. Upon inspection, a shatter crack was discovered in the duct which required engine removal.

In a third "save" credited to Moss, normal inspection procedures failed to disclose any abnormality in a jet engine, even though the engine plots indicated a rise in exhaust gas temperature and a slight drop of rpm in the high power compressor section. The instruments were reliable and the readings correct but no cause was apparent. On

NATIONAL SAFETY AWARD WINNERS

John K. Rude, Jr.
Waterford, Conn.
Pilgrim Airlines

The two national winners in the FAA's seventh annual National Aviation Mechanics Safety Awards program for 1969 improved American aviation safety and reliability by developing better monitoring systems for engines—and in the process earned high honors and valuable cash and material awards. The story behind the exploits of Harold Moss is told on page 10. Rude's story will appear next month.

Harry J. Moss
New York City
Pan American

REGIONAL WINNERS

The 14 regional winners in the mechanic awards program, who will share more than $10,000 in prizes donated by industry, are shown below:

Poul Lauridsen
Northridge, Calif.
TWA

Jay Reiter
Inglewood, Calif.
TWA

Each of the two national winners will receive a duplicate of this handsome bronze framed wall plaque.

Moss's recommendation, the engine was separated at the No. 2 station (high pressure compressor). The first stage turbine wheel knife edge seal was found to have disintegrated; for lack of the seal an engine might have failed.

These examples are typical of the record Harry Moss has compiled as an engine diagnostician, leading to his national award as "the aviation mechanic who has consistently demonstrated an unusually high level of professionalism." (Other categories in this annual competition include "improvements to airframes, engines, or components which lead to increased reliability," and "maintenance or inspection procedures which increase air safety.")

When the national award ceremony takes place in Washington on June 30, Moss and his wife will be the guests of the Lockheed-California Company, which will also present him with $500. He will also receive $300 from Ziff-Davis Publications, $200 from the Air Transport Association, a $50 U.S. Savings Bond from the Professional Aviation Mechanics Association, and use of a chauffeur-driven limousine for part of his Washington visit, courtesy of Champion Spark Plug Company.

Success has not dulled Harry Moss's ambition. He is currently studying at night for a degree in Mechanical Engineering, which he feels will extend his opportunities to make a significant contribution to aviation safety in the field of maintenance. His employer, Pan Am, believes that these opportunities are virtually unlimited. ■

George T. Sanoski
Fairbanks, Alaska
Wein Consolidated

George R. Pappas
Anchorage, Alaska
Aircraft Rebuilders

Joseph Griffith
Tulsa, Okla.
American Airlines

John Pritzel
Missoula, Mont.
Johnson Flying Service

Thomas R. Woodhouse
Spanish Fork, Utah
Self-employed

Joe C. Kanke
Arleta, Calif.
Flying Tiger Line

Calvin K. H. Loo
Pearl City, Hawaii
Aloha Airlines

Morris M. Ono
Aiea, Hawaii
Hawaiian Airlines

David F. Strang, Jr.
Channelview, Texas
Texas International

V. D. Robertson, Jr.
Albuquerque, N.M.
Cutter Flying Service

Ernest L. Hurd
Winston Salem, N.C.
Piedmont Airlines

Richard J. DeLano
Jonesboro, Ga.
Air South

Famous **FLYERS**

Glenn Martin's China Clipper Gave WINGS to the ORIENT

Martin TT, adopted by the Army in 1913, was first plane specifically designed as a trainer.

Glenn L. Martin was already a towering figure in world aviation when he and Juan T. Trippe, president of Pan American (World) Airways, sat down in Martin's spacious Baltimore office in 1931 to discuss a flying machine that was to shrink oceans to ponds—the flying clippers.

In a day when the largest airliners carried scarcely more than 10 passengers at about 120 mph over a few hundred miles, Trippe wanted a plane built that could accommodate *52 persons and two tons of cargo at a cruising speed of 150 mph.* Its range would have to be at least 3,200 miles, the first leg of an 8,210-mile route that would be its normal round trip course from San Francisco to Manila. Its hull would have to be absolutely seaworthy to enable it to float for days if necessary. The crew would consist of a captain, first officer, navigator, engineer, radio operator and junior officers who would stand watch, just as surface ship officers did.

Trippe was describing the basic specifications for the famed *China Clippers* and he wanted not one, but three of them. Martin saw no reason why Trippe couldn't have exactly what he wanted—even though no one had ever built a plane so large and with such performance requirements. He agreed to produce the first *Clipper* within three years, a remarkably short lead time for so revolutionary a plane. But Martin was a man destined to make things fly.

He was born Glenn Luther Martin in Macksburg, Iowa, January 17, 1886. As a high school boy he rigged a sail to his bicycle and went whizzing down the single street in his hometown, feet off the pedals. Years before that he had harnessed one of his mother's bedsheets to his toy wagon and spooked a team of horses tied up at his father's hardware store.

Following several unsuccesful business ventures, the Martins moved westward, settling in Santa Ana, Calif. Glenn, now 18 and a gangling, aloof six-footer, found work in a garage where his remarkable mechanical skill earned him a county-wide reputation as an ace trouble shooter. Within a

Above—MB-2 built by Martin in 1918. First true heavy bomber in the U.S. Army Air Corps proved its worth in bombing captured German warships in 1922 test. **Right**—barnstormer Glenn L. Martin in "Man in Black" outfit.

year he was in business for himself as the proprietor of a Ford and a Maxwell agency. His father went on the payroll as a salesman.

Martin adopted what many later learned was to a large extent a disguise—severe, round rimless glasses perched on his nose. He was a *very, very serious* young businessman, meticulous in dress and manner. His language was impeccable and his clothing would pass him into a morticians' convention. In fact he was called the "undertaker" by newspaper phrasemakers. Behind the camouflage, however, lurked the spirit of an adventurer.

In 1908 Glenn Martin built his first successful aircraft, a biplane pusher with a 40-foot wingspan frankly patterned after the Wright and Curtiss planes. It was powered by a 15 hp Ford engine which drove it through the air at 42 mph. (The plane would stall at 38 mph.) Martin had built it in an abandoned church, working nights after a full day at the automobile shop. "Minta" Martin pitched in to help her son, holding the kerosene lamp and wielding hammer and saw, and stitching and varnishing fabric.

On August 1, 1909, Martin opened the throttle and pointed his plane toward the far end of the field. There would be no taxi tests—he was determined to fly the first time out. Without hesitation, the plane rose, flew 100 feet at an altitude of two feet, and settled to the ground. He was the first man to fly in California.

With refinements, including a three-cylinder 30 hp Elbridge engine that increased the plane's range and altitude and almost doubled its speed, Martin embarked on a barnstorming tour that won him instant fame and sufficient money to start his first aircraft company. His fancy attire soon won him the nickname "The Flying Dude," and later, when he switched to black leather helmet, leather jacket, pants, and puttees, he was called the "Man in Black."

Martin was an instant success as an aircraft builder. His Martin TT (Tractor Trainer), produced in 1913, was the first plane deliberately designed as a trainer. It was immediately adopted by the Army. Using a "TT," Martin "starred" in several movies, one featuring Mary Pickford. He did pioneer work in parachutes and his progressive aircraft designs attracted to his employ men like Lawrence Bell, J. A. Kindelberger, and Donald Douglas. All later became famous designers. Scores of his students, including William E. Boeing, helped turn aviation from a rich man's toy into a powerful industry.

In WW I, Glenn Martin rushed a mighty twin-engine biplane bomber, the MB-1, to completion in record time but the war ended and it saw no combat. A refinement, the MB-2, however, became the standard Air Corps bomber, and on July 20, 1921, a flight of these under the command of General "Billy" Mitchell proved the potency of airpower when they showered bombs on the captured German battleship *Ostfriesland* sending it to the bottom.

One successful design followed another for the next ten years, until his fame brought Juan Trippe to Martin's door to ask for the impossible airplane—the *China Clipper*.

The *China Clipper* (NC-14716) had two sisters: *Philippine Clipper* (NC-14715), and *Hawaiian Clipper* (NC-14714). *China Clipper*, despite its higher NC number, was delivered first, in December 1934, making the journey from concept to drafting tables to full-size wood and metal mockups to preliminary water tests in three years.

China Clipper was an impressive plane on the water and in the air. Martin had

devised an ocean going hull, adding short stubby wings at water level to give added lift and stability in the water. Her 130-foot wings and 52,000-pound gross weight made her the largest aircraft of her day. Four engines totaling 3,320 hp gave her a cruising speed of 157 mph and a top speed of 181 mph. She was licensed to carry 102.1 per cent of her empty weight.

On Friday, November 22, 1935, with Capt. Edwin C. Musick commanding, *China Clipper* pointed her nose westward toward Honolulu, 2,410 miles away. The flight would terminate at Manila 8,210 miles distant. The world's longest airline was in operation.

The first flight carried no paying passengers—it was a survey trip, bearing two tons of mail and air express cargo. *China Clipper* arrived in Manila in 59 hours, 48 mins. flying time, with stops at Honolulu, Midway, Wake, and Guam. Passenger service was inaugurated in April 1936, beginning a spectacular career for the *Clippers* that continued into WW II and ended in a crash while landing at night at Port of Spain, Trinidad in January, 1945.

Martin did not rest with the *Clippers*. Before and during WW II his factory at Baltimore produced a steady stream of dive bombers, coast patrol flying boats and long-range flying boats.

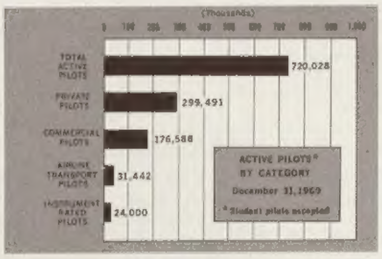
Soon after the war the company produced the Martin "202," and in 1950, the Martin "404" transports for the civilian market. But these aircraft did not catch on, and with the drying up of military contracts, the company was hard pressed financially.

Martin sought recreational relief from a lifetime of strenuous effort. He purchased a retreat on the Chesapeake Bay for private hunting and fishing. It was at this hideaway that he suffered a cerebral hemorrhage on December 4, 1955. He died a few hours later at University Hospital in Baltimore at age 69, a lifelong bachelor. ■

China Clipper, giant of her day, had a 130-foot wing, carried a crew of four, 18 passengers at a speed of 181 mph.

Pilot BRIEFS

■ ACTIVE PILOTS NUMBER 700,000 PLUS. As of December 31, 1969 there were 720,028 pilots in the United States holding a current medical certificate, a four percent rise over the 1968 year-end total. The student pilot category showed a three percent decline, but the number of private pilots increased by six percent to 299,491; commercial pilots increased seven percent to 176,585; and airline transport pilots were up 10 percent to 31,442. Thirty percent of the pilot population (excluding students) now hold an instrument rating.



■ FUEL SYSTEM FIRES. A two-day conference on fuel system fire safety in transport airplanes held on May 6 and 7 at FAA Headquarters in Washington included a discussion of proposed certification and operational standards for fire protection of fuel tanks and venting systems.

Copies of presentations are available from Stephen H. Rolle, FS-140, Federal Aviation Administration, 800 Independence Ave. S.W., Wash., D.C. 20590. New regulatory proposals will be developed and processed in accordance with established rulemaking procedures.

■ MAJOR CHANGES IN MECHANICS SCHOOLS. Certificated aviation mechanic schools have two years in which to update curricula in accordance with new requirements for certification. Instruction hours for either airframe or powerplant ratings have been increased from 960 to 1,150 hours, and other changes call for a shift in the emphasis on various subjects. Approved schools will be designated as "aviation maintenance technician schools." Full details are available at Flight Standards District Offices.

■ TRAFFIC INCREASE TAPERING OFF. Operations at the 328 airports in the United States with an FAA-staffed control tower increased only two per cent last year, according to the latest DOT/FAA traffic activity report.

This is the smallest annual increase since 1961 and compares with an 11 per cent increase recorded in 1968.

■ MORE OXYGEN EQUIPMENT REQUIRED. A new rule requiring aircraft to carry supplemental oxygen equipment when operating at cabin pressure altitudes above 12,500 feet mean seal level (MLS) has been adopted by FAA. Both pressurized and unpressurized aircraft, regardless of weight are, covered by the new regulation.

At cabin pressure altitudes above 12,500 feet MSL up to and including 14,000 feet, only the required minimum flight crew will have to use supplemental oxygen and only if the flight lasts more than 30 minutes. At cabin pressure altitudes above 14,000 feet, oxygen must be used by the minimum flight crew during the entire flight time. Above 15,000 feet cabin pressure altitude, each occupant of the plane must be provided with supplemental oxygen.

Flight Instructor Refresher Courses Locations and Dates

The following instructor refresher courses, scheduled throughout the remainder of 1970, are available to all certificated flight instructors seeking renewal of their certificate, commercial pilots working toward flight instructor rating, officers of college or service flying clubs and teachers in city or county school systems instructing in aeronautical subjects. Applicants should contact the appropriate sponsor, not FAA.

FLIGHT INSTRUCTOR COURSES

LOCATION	SPONSOR	DATES
Alabama: Auburn	Auburn University	8/18-20/70
Arizona: Phoenix	Arizona Dept. of Aeronautics	9/29/70-10/1/70
Calif.: Costa Mesa	AOPA Air Safety Foundation & Orange Coast College	9/1-3/70
San Diego	AOPA Air Safety Foundation	11/3-5/70
Fresno	AOPA Air Safety Foundation	12/1-3/70
Colo.: Colo. Springs	AOPA Air Safety Foundation & City of Colorado Springs	10/27-29/70
Connecticut: Hartford	Conn. Dept. of Aeronautics	11/17-19/70
Florida: Miami	Dade County Pilots Assoc.	7/14-16/70
Melborne	AOPA	8/11-13/70
Georgia: Atlanta	Ga. Dept. of Industry & Trade & FAA	7/7-9/70
Hawaii: Honolulu	Dept. of Transportation, Hawaii	12/15-17/70
Illinois: Moline	Illinois Dept. of Aeronautics	8/4-6/70
Champaign	AOPA & University of Illinois	8/18-20/70
Indiana: Terre Haute	Indiana State University	7/14-16/70
Lafayette	AOPA & Purdue University	10/13-15/70
Iowa: Ames	Iowa State University	9/22-24/70
Maine: Bangor	Maine Aeronautics Commission	9/15-17/70
Maryland: Baltimore	AOPA & State Dept. of Aeronautics	11/17-19/70
Massachusetts: Boston	Massachusetts Aero. Commission	10/13-15/70
Mississippi: Jackson	Mississippi Aero. Commission	12/1-3/70
Nebraska: Lincoln	University of Nebraska	12/8-10/70
New Hampshire: Plymouth	Plymouth State College	7/7-9/70
Plymouth	Plymouth State College	11/10-12/70
New Jersey: Princeton	FAA General Aviation District Office	8/25-27/70
N. Dakota: Grand Forks	University of North Dakota	12/15-17/70
Ohio: Kent	Kent State University	8/4-6/70
Oklahoma: Stillwater	Oklahoma Aero. Commission	10/27/70
S. Carolina: Columbia	AOPA & State Dept. of Aero.	11/10-12/70
Tennessee: Memphis	State Dept. of Aeronautics	9/8-10/70
Texas: Galveston	Texas Aeronautics Commission	7/21/70
Longview	Texas Aeronautics Commission	9/15/70
Harlingen	Texas Aeronautics Commission	11/23/70
Utah: Salt Lake City	Utah Division of Aeronautics	10/6-8/70
To be announced	Utah Division of Aeronautics	9/28-30/70
Vermont: Burlington	Vermont Aeronautics Board	9/29/70-10/1/70
Virginia: Richmond	State Division of Aeronautics	10/20-22/70
Wisconsin: Madison	Wisc. Dept. of Aeronautics	7/28-30/70

Captain Honored for Saving Aircraft Despite Blast

Captain Herbert F. Kerr, Jr., a Delta Air Lines pilot who saved the life of his first officer and probably prevented a fatal accident following explosive decompression in flight, has been honored with the Federal Aviation Administration's Award for Distinguished Service.

The award was presented by FAA Administrator John H. Shaffer in a ceremony at the Delta Air Lines' Headquarters in Atlanta.

Captain Kerr was honored for his "exceptional heroism, quick thinking and positive action" during an in-flight emergency last February 3. Explosive decompression occurred shortly after takeoff from Atlanta while the aircraft was cruising at an altitude of 9,000 feet near Macon, Ga. The sliding glass window on the right side of the flight deck was ripped loose, and the first officer was sucked head first into the open window. Captain Kerr, reacting immediately to the situation, grabbed the first officer by the belt and was able to drag him back into the plane.

Captain Kerr was able to land the aircraft without further incident. There were 47 persons on board.

SMOKE-LESS. New type of combuster being fitted above to a JT8D engine, which powers Boeing 727 and 737s, will greatly reduce smoke emission due to a redesigned fuel nozzle and increased air volume in the combustion zone which assures more complete burning of the fuel.

Tech Reports on New Transponder

A newly developed transponder which uses dual antennas to eliminate the loss of transponder replies during certain aircraft maneuvers is discussed in one of the eight new FAA/DOT technical reports.

Other subjects covered in the reports include: procedures for siting future radar beacons; development of an isotopic altimeter indicator; effects of the environment on airport pavement grooves; an evaluation of the long-range Omega navigation system; use of retractable pendant cables with emergency arresting systems; an evaluation of a C-141 all weather landing system, and modifications to a course line computer/pictorial display.

A brief description of the scope of each of the above reports, along with their formal titles and "AD" catalog numbers is contained in public information release number T 70-16, (March 16, 1970) available free from the Federal Aviation Administration, (PA-10), 800 Independence Ave., S.W., Washington, D.C. 20590. The release also gives information on how the reports may be ordered and their price.

SONIC BOOM RESTRICTIONS SOUGHT

A DOT/FAA proposed rule would prohibit flights by civil aircraft over the United States at speeds that would cause a sonic boom to reach the ground.

The regulation provides that under certain circumstances sonic booms might be permitted to reach the surface in designated flight test areas for research and development purposes.

Comments on the proposed rule (Notice 70-16; Docket 10261) should be submitted in duplicate to the FAA Office of General Counsel, Rules Docket, GC-24, 800 Independence Ave., S.W., Wash., D.C. 20590 by June 15, 1970.

• Aircraft Proximity Warning

I noted in the January issue of FAA AVIATION NEWS that the Federal Aviation Administration has awarded a $279,000 contract for a study to develop a low-cost system for aircraft proximity warning.

Could you furnish me with whatever broad criteria and guidelines FAA has sketched out for this system?

John M. McCutcheon
Los Altos Hills, Calif.

Collision prevention systems seem simple at first glance but in fact they are highly complex. Systems can range from extension of the see-and-be-seen concept to very sophisticated and expensive electronic systems. FAA is mainly, but not exclusively, concerned with two basic concepts: Collision Avoidance Systems (CAS) and Pilot Warning Instruments (PWI).

The CAS is an all-weather system which can detect all potentially dangerous "intruders," evaluate the degree of danger, and if the danger is sufficiently grave, indicate to the pilot the proper avoidance maneuver in sufficient time to execute it safely.

The PWIs envisioned will be VFR devices which will measurably assist a pilot in visually acquiring other aircraft in his vicinity, after which the pilot must evaluate the threat and take appropriate action.

A more comprehensive view of FAA's criteria and aims can be found in "Pilot Warning Instruments—Proceedings of a Symposium." Copies can be ordered for $3.00 each from the Clearinghouse for Federal Scientific and Technical Information, 5285 Port Royal Drive, Springfield, Va. 22151, under its identification number, AD 666 122.

• Colors Flying

In FAA's collision research programs has any significant correlation appeared between color of aircraft and frequency of mid-air accidents? Also, have any studies been conducted relating aircraft colors, environmental conditions, and visual perception? What action has FAA taken to convince aircraft producers and purchasers that a color which is most pleasing to the eye on the ground can be most elusive to the eye when viewed through three to five miles of smoke and haze?

Randy Hinz
Wantagh, N. Y.

The Near Midair Collision Report of 1968 found that paint color was not a primary cause of alert. Certain paint colors on aircraft under certain background conditions improve conspicuity but under other backgrounds may be detrimental.

Paint colors are not among the criteria followed in aircraft certification procedures.

The following FAA sponsored studies related to aircraft conspicuity examine the problem in detail. They may be ordered for $3.00 each from the Clearinghouse for Federal Scientific and Technical Information, 5285 Port Royal Drive, Arlington, Va. 22151:

"The Role of Paint in Midair Collision Prevention," (AD 273 691); "The Role of Optical Devices in Midair Collision Prevention," (AD 600 326); "The Role of Range and Altitude Judgment in Midair Collision Prevention," (AD 418 430).

• To Cage or Not to Cage

Your September 1969 issue has a statement on the Forum page that suggests directional gyros should be caged during landing or take-off. In the December 1969 issue your article on these gyros says that you should never leave the instrument caged except when shipping it or when preparing to engage in aerobatic maneuvers.

Which is correct?

James Cozzie
University Park, Pa.

The December article is correct. Manufacturers advise against caging except for shipping or aerobatics.

• Silver Screen

I would like to know how I can get some 8 mm movies about aviation, especially about weather. I intend to show them to a group of pilot friends.

Lazaro O. Baiallao
Miami, Fla.

The FAA film library does not have 8 mm movies but it does have an extensive collection of 16 mm sound films, many in color. In addition, the library has a group of autoslide packets consisting of a series of 35 mm color slides mounted on 2" x 2" frames, a printed narration and a narration recorded on ¼" magnetic tape. All of the seven autoslide packets concern weather.

Both the movies and the autoslide packets are available for loan free of charge. A catalog listing films and procedure for obtaining them can be obtained by writing to Federal Aviation Administration (PA-30), 800 Independence Ave., S. W., Washington, D. C. 20590.

• Sky Diving Hazardous?

"Borne Free," your article on skydiving in the April issue, includes editorial comment with which I, after 1,400 jumps, might disagree, viz., that skydiving is a "hazardous sport" marked by "savage shocks." That's the author's opinion.

But it's not a matter of opinion about when your reserve or emergency parachute operates. Contrary to your article, which stated ". . . (to work safely) the reserve will have to open at no less than 1,500 feet above the ground," it's a proven fact that an emergency parachute can be activated *as low as 350 feet above the surface*, with at least a 95% chance of successful operation. One of the country's largest parachute manufacturers proved this with on-camera dummy drops some years ago.

Of course, it's common sense to deploy the reserve as high above the ground as possible, on those rare occasions when it's needed—and the United States Parachute Association so teaches our member jumpers.

William H. Ottley
Secretary, United States
Parachute Association

FAA Aviation News welcomes comments from the aviation community. We will reserve this page for an exchange of views. No anonymous letters will be used, but names will be withheld on request.

• Runway Riddle

Pilots often have difficulty in finding the active runway on their landing approach. This can be especially confusing where there are a number of runways that run basically in the same direction.

It seems to me that if there was some visual indication to the pilot, the airport and the active runway could be easily located and, most important, accidents could be prevented.

If the threshold of each runway had a strobe light, and the one on the active runway lighted, pilots would have a clear indication where to land. Such a strobe light could be seen a good distance from the airport and would give the pilot an opportunity to properly set up his approach without using artificial devices or making calculations.

Milton M. Mokotoff
New York, N.Y.

In daytime clear weather conditions, pilots should navigate to the general vicinity of the airport, identifying it by the runway configuration, airmarkings, and other landmarks. Runways are identified by large painted numerals which are determined from the approach direction and is the whole number of one-tenth magnetic azimuth. Additionally, landing directional indicators show the active runway.

At night in good weather the airport may be located by a distinctive airport beacon. The layout of the runway is shown by runway edge lights, and the ends of the runways may be equipped with Runway End Identifier Lights (REILS). The REILS consist of two bright strobe lights located near the end of the runway or extension of the threshold lights. These strobe lights are aimed, generally, in the direction of the approach.

In poor visibility, either during night or day, a pilot must operate under instrument flight rules which will require navigation with electronic aids. Dependence on visual aids such as the beacon to recognize the airport will be reduced under these conditions. In such conditions, approach lighting may be provided for the final approach to the instrument runway after the aircraft has come within sight of the proper runway using electronic means.

The various systems are described in the Airman's Information Manual, Part 1, which is available from the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402 at an annual subscription price of $4.00

U.S. GOVERNMENT PRINTING OFFICE
DIVISION OF PUBLIC DOCUMENTS
WASHINGTON, D.C. 20402

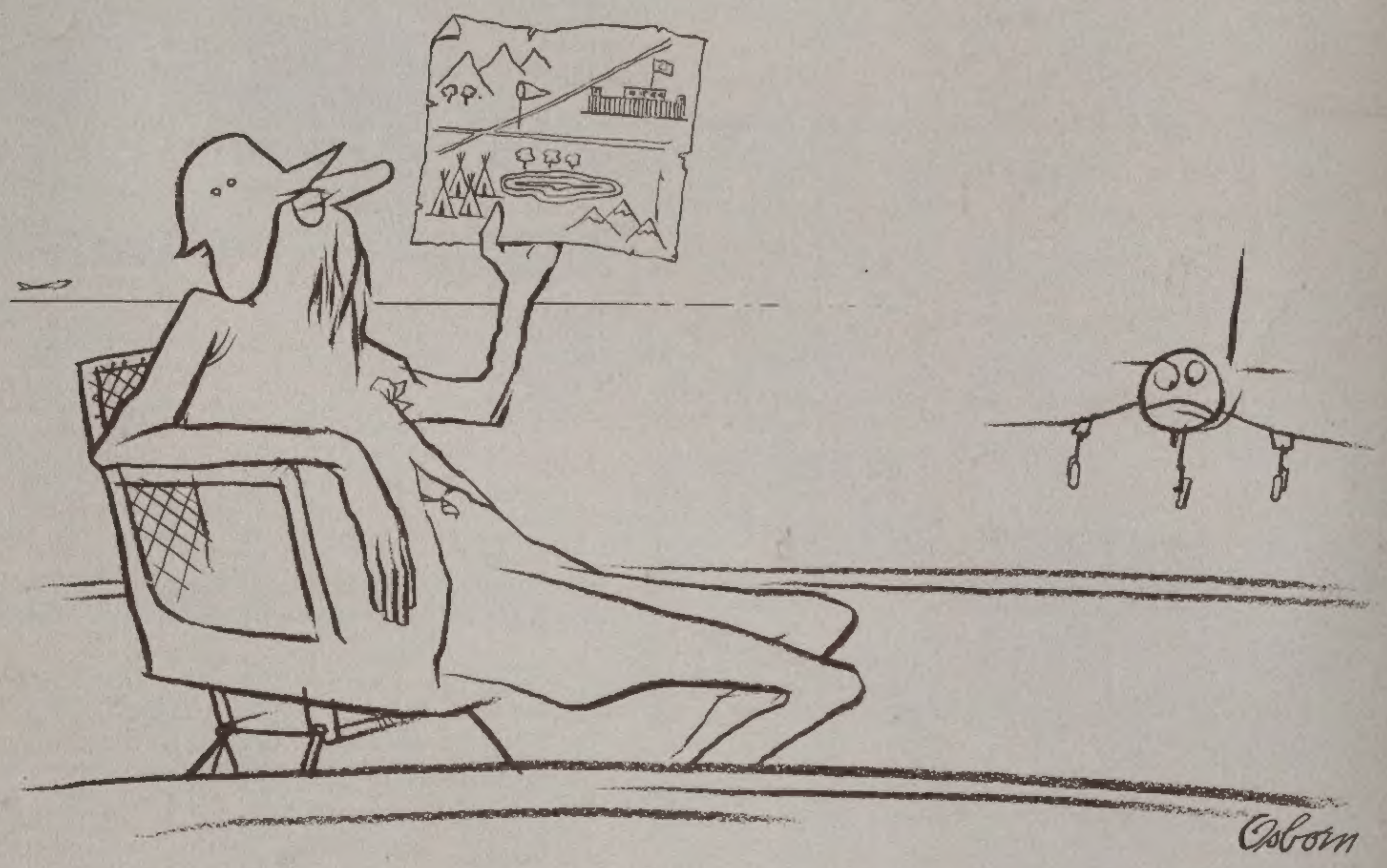
OFFICIAL BUSINESS

RETURN AFTER 5 DAYS

AVN NOV
ARTHUR A CARTER JR
2145 N PIERCE ST, APT 7
ARLINGTON VA 22209

POSTAGE AND FEES PAID
U.S. GOVERNMENT PRINTING OFFICE

Use your smarts



Get current charts

Suggested by Garrett C. Hayes
Miami ARTCC, Florida